Lloyd's Register

Rules and Regulations for the Classification of Ships, July 2012

Notice No. 9

Effective Date of Latest Amendments:

See page 1

Issue date: February 2013

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RULES AND REGULATIONS FOR THE CLASSIFICATION OF SHIPS, *July 2012*

Notice No. 9

This Notice contains amendments within the following Sections of the *Rules and Regulations for the Classification of Ships, July 2012*. The amendments are effective on the dates shown:

Part	***Chapter***	***Section***	***Effective date***
7	11	1 to 4	1 July 2013

It will be noted that the amendments also include corrigenda, which are effective from the date of this Notice.

The *Rules and Regulations for the Classification of Ships, July 2012* are to be read in conjunction with this Notice No. 9. The status of the Rules is now:

Rules for Ships	Effective date:	July 2012
Notice No. 1	Effective date:	1 July 2012
Notice No. 2	Effective date:	1 October 2012
Notice No. 3	Effective date:	1 January 2013 & Corrigenda
Notice No. 4	Effective date:	1 January 2013
Notice No. 5	Effective date:	1 January 2013
Notice No. 6	Effective date:	1 January 2013
Notice No. 7	Effective date:	1 July 2013 & Corrigenda
Notice No. 8	Effective date:	1 July 2013 & Corrigenda
Notice No. 9	Effective date:	1 July 2013

Part 7, Chapter 11

Arrangements and Equipment for Environmental Protection (ECO Class Notation)

Effective date 1 July 2013

■ *Section 1*
General requirements

1.1 Application

~~*1.1.3* Where a ship is classed with another IACS Member and all the requirements of this Chapter are met, a Statement of Compliance will be issued. At the specific request of the Owner, the descriptive note **ECO** may be recorded in the *Register Book*.~~

~~*1.1.4*~~ *1.1.3* Additional requirements may be imposed by the National ~~Authority~~ Administration with which the ship is registered and/or by the ~~Administration~~ Authority within whose territorial jurisdiction it is intended to operate. Where such additional requirements are relevant to the ship, compliance with ~~such~~ those Regulations is the responsibility of the Owner. If specifically requested, Lloyd's Register (hereinafter referred to as 'LR') may provide suitable certification or statement of compliance.

Existing paragraph 1.1.5 *has been renumbered* 1.1.4.

.2 ECO class notation: minimum requirements and additional characters

1.2.2 Section 3 contains additional requirements. Ships complying with these requirements will be eligible for one or more of the following associated supplementary characters, as applicable:

A	Anti-fouling coatings.
BIO	Bio-fouling.
BWT	Ballast water treatment.
CRM	Cargo residue minimisation.
~~**EEDI**~~ **EEDI-1, EEDI-2, EEDI-3**	Energy efficiency design index.
SEEMP, EnMS	Ship energy efficiency management.
~~**EEOI**~~	~~Energy efficiency operational indicator.~~
GW	Grey water.
IBTS	Integrated Bilge Water Treatment System.
IHM	Inventory of hazardous materials.
NOx-1, NOx-2, NOx-3	~~Oxides of nitrogen~~ Nitrogen Oxides (NO_x) exhaust emissions.
OW	Oily bilge water.
P	Protected oil tanks.
R	Refrigeration systems.
~~**DIST, SOx**~~	~~Oxides of sulphur~~ Sulphur Oxides (SO_x) exhaust emissions.
SOx, DIST	
TC	Enhanced tank cleaning.
~~**VECS,**~~ **VECS-L, VOC-R**	Vapour emission control systems (tankers only).

1.3 Definitions

1.3.1 The following definitions are applicable:

- **Animal carcasses** means the bodies of any animals that are carried on board as cargo and that die or are euthanised during the voyage.
- **Antifouling Convention** means the International Convention on Control of Harmful Antifouling Systems on Ships. This Convention prohibits the use of organotin anti-fouling systems on ships and was adopted by the International Maritime Organization (IMO) in October 2001.
- **Ballast Water Convention** means the International Convention for the Control and Management of Ships' Ballast Water and Sediments. This international legislation was developed by the IMO to regulate discharges of ballast water and reduce the risk of introducing non-native species from ships' ballast water.
- **Cargo Residues** means the remnants of any cargo which is not covered by other Annexes to MARPOL and which remains on the deck or in holds following loading or unloading, including loading and unloading excess or spillage, whether in wet or dry conditions or entrained in wash water. This does not include cargo dust remaining on the deck after sweeping or dust on the external surfaces of the ship.
- **Cooking oil** means any type of edible oil or animal fat used or intended to be used for the preparation or cooking of food. This does not include the food that is prepared using these oils.
- **Domestic wastes** mean all types of wastes not covered by other Annexes that are generated in the accommodation spaces on board the ship. Domestic waste does not include grey water.
- **Garbage** means all kinds of food wastes, domestic wastes and operational wastes, all plastics, cargo residues, cooking oil, fishing gear, and animal carcasses generated during the normal operation of the ship and is liable to be disposed of continuously or periodically, except where those substances are defined or listed in other Annexes to MARPOL. Garbage does not include fresh fish and parts thereof which are generated as a result of fishing activities undertaken during the voyage, or as a result of aquaculture activities which involve the transport of fish, including shellfish for placement in the aquaculture facility and the transport of harvested fish, including shellfish from such facilities to shore for processing.
- **Geometric mean** means the *n*th root of the product of *n* numbers.
- **Grey water** is drainage from dishwater, shower, laundry, bath and washbasin drains and excludes drainage from hospitals.
- **Incinerator ashes** means ash and clinkers resulting from shipboard incinerators used for the incineration of garbage.
- **Leakage detection system** means a calibrated mechanical, electrical or electronic device for detecting leakage of refrigerant gases which, on detection, alerts the operator.

- **MARPOL** or **MARPOL 73/78** is the International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978.
- **Operational wastes** means all solid wastes (including slurries) not covered by other Annexes that are collected on board during normal maintenance or operations of a ship, or used for cargo stowage and handling. Operational wastes also include cleaning agents and additives contained in the cargo hold and external wash water. Operational wastes do not include grey water, bilge water, or other similar discharges essential to the operation of a ship, taking into account the guidelines developed by the Organisation.
- **Operator** means the natural or legal person exercising actual power over the technical functioning of the equipment and systems.
- **Refrigerant system log book** means a method of maintaining a record of maintenance, calibration, refrigerant charging, leak detection, recovery, etc. The log book may take the form of a stand-alone book, a series of log sheets or form part of the engine room log.
- **SEEMP** means a Ship Energy Efficiency Management Plan, and is a ship-specific manual which aims to improve the energy efficiency of ship operations.
- **Thermotolerant coliforms** is the group of coliform bacteria which produce gas from lactose in 48 hours at 44,5°C. They are also referred to as 'faecal coliforms'; however, the term 'thermotolerant coliforms' is now accepted as more appropriate, since not all of these organisms are of faecal origin.
- **VECS** means vapour emission control system.
- **VOC** means volatile organic compound.

~~1.3~~ 1.4 Information to be submitted

~~1.3.1~~ 1.4.1 The following are to be submitted:

~~(a) One copy of all plans and information listed in 1.3.5.~~
~~(b) Two copies of the Operational Procedures listed in 1.3.4.~~
~~(c) One copy of every Certificate listed in 1.3.3.~~
(a) One copy of every Certificate listed in 1.4.3.
(b) Two copies of the Operational Procedures listed in 1.4.4.
(c) One copy of all plans and information listed in 1.4.5.

Existing paragraph 1.3.2 *has been renumbered* 1.4.2.

~~1.3.3~~ 1.4.3 Certificates:

~~(a) MARPOL certificates, as applicable.~~
(a) MARPOL certificates or statements on behalf of the ship's Flag State, including:
  - Engine International Air Pollution Prevention (EIAPP) Certificate or Statement of Compliance with the NO$_x$ emission requirements of MARPOL Annex VI for each engine to which Regulation 13 applies;
  - International Energy Efficiency Certificate.

(b) Safety Management Certificate (SMC) and Document of Compliance (DOC) in accordance with the International Safety Management Code (ISM Code).
~~(c) Engine International Air Pollution Prevention (EIAPP) Certificate or statement of compliance with the NOx emission requirements of MARPOL Annex VI for each engine.~~
~~(d) Incinerator certificate or statement of compliance with the requirements of MARPOL Annex VI, Regulation 16.~~
(c) Incinerator Type Approval Certificate or equivalent, as required by 2.9.2.
~~(c)~~(d) TBT-free anti-fouling ~~paint~~ system certificate.
~~(f)~~ (e) Sewage system and, where fitted, sewage treatment system statement of compliance with the requirements of USCG 33 CFR 159 and/or MARPOL 73/78 Annex IV.
~~(g)~~(f) Vapour emission control system certificate or statement of compliance with the requirements of USCG 46 CFR 39 or the IMO Standards for Vapour Emission Control Systems (MSC Circular 585) (~~supplementary character V~~ oil tankers carrying crude oil only).
(g) VOC reducing device Type Approval Certificate or equivalent as required by (supplementary character **VOC-R**).
(h) ISO 50001 (Energy Management) Certificate, issued by an accredited organisation (supplementary character **EnMS** only).

~~1.3.4~~ 1.4.4 Operational procedures:

~~(a) NO$_x$ emission control, as applicable.~~
(a) Procedures to be adopted to ensure that the ship's NO$_x$ certification is maintained.
(b) Oil fuel management for the control of SO$_x$ emissions.
(c) Refrigerant management including adding and recovering refrigerant charge, leak detection and sample log book.
(d) Retention and disposal of spilled or spent foam, chemical or liquid based fire-fighting media, as applicable.
(e) Oil pollution prevention measures.
(f) Garbage management.
(g) Sewage treatment and discharge control.
(h) Precautionary measures to minimise the transfer of non-native organisms in ballast water.
~~(j) Ballast water management, as applicable.~~
(j) Ballast Water Management Plan (all ships).
~~(k) Energy management plan.~~
(k) Ship Energy Efficiency Management Plan.
(l) Vapour management plan (tankers carrying crude oil~~, petroleum products or volatile chemical cargoes~~ only).
(m) Grey water treatment or holding and discharge (supplementary character **GW** only).
(n) ~~Maintenance of~~ Procedures for maintaining the inventory of hazardous materials (supplementary character **IHM** only).

~~1.3.5~~ 1.4.5 Information and plans:

(a) SERS registration number or statement of membership of alternative scheme from IACS Member service provider.
(b) Details of engine ~~type~~ make and model, rated power, rated speed and ~~intended use~~ duty cycle for all installed engines falling within the scope of MARPOL Annex VI Regulation 13.
~~(c) Details of NO$_x$ control arrangements, as applicable.~~
(c) Description of the method(s) by which the NO$_x$ certified value has been achieved. The supplementary characters (**NOx-1** and **NOx-2**) and NO$_x$ Technical File for the engine plus NO$_x$ reducing device (**NOx-3** supplementary character).
(d) Details and location of each permanently installed refrigeration system~~s~~ (including those used for cargo temperature control, air conditioning, provision rooms and chiller units).
(e) Mass of refrigerant charge in each system and the refrigerant designation (e.g., R-134a) in accordance with ISO 817.
(f) Refrigerant plant general arrangement drawing showing number and locations of the refrigerant leak detectors.

(g) Details of fire-extinguishing media to be used in fixed fire-fighting systems and portable extinguishers.
(h) Bilge holding, waste oil and sludge tank capacities and piping arrangements.
(j) Arrangements of non-cargo oil loading and discharge connections together with associated drip trays and drainage systems.
(k) Oil fuel storage, settling and service tank high level alarms/overflow systems.
(l) Cargo and ballast tank arrangements (tankers only).
(m) Cargo and ballast piping system plans, including cargo tank overfill prevention arrangements (tankers only).
(n) Arrangements of tanker cargo manifolds together with associated drip trays and drainage systems.
(o) Details of sewage treatment and handling systems.
(p) Capacity of sewage holding and/or treatment system.
(q) Maximum numbers of crew and passengers.
(r) Details of incinerator arrangements, as applicable, associated piping systems, control and monitoring equipment.
(s) Hull coating system.
(t) Ballast water treatment arrangements, as applicable (for supplementary **BWT** character only).
~~(u) Energy Efficiency Design Index calculation records or certificate (supplementary character **EEDI** only).~~
~~(v) Energy Efficiency Operational Indicator calculation records (supplementary character **EEOI** only).~~
(u) Energy Efficiency Design Index Statement of Compliance or certificate (supplementary characters **EEDI-1**, **EEDI-2** and **EEDI-3** only).
~~(w)~~ (v) Details of grey water treatment plant and effluent quality (for supplementary **GW** character only).
~~(x) Inventory of hazardous materials (supplementary character **IHM** only).~~
(w) Inventory of Hazardous Materials Statement of Compliance.
~~(y)~~ (x) Arrangements for protected oil tanks (for supplementary **P** character only).
~~(z)~~ (y) Shadow area diagrams (supplementary character **TC** only).
~~(aa)~~ (z) Details of self-contained vapour recovery systems, where fitted, ~~(for supplementary **VOC-R** character only and **VECS**, **VECS-L** characters, as applicable~~ required for **VOC-R** character; for tankers carrying crude oil as applicable (*see* 2.13.2); and for **VECS-L** character as applicable (*see* 3.18.3).).
(aa) LR Statement of SEEMP conformance and associated documentation (supplementary character **SEEMP** only).
(ab) Any information relating to the environmental performance of the ship, which may influence the assignment of the **ECO** notation.

~~1.4~~ 1.5 Alterations and additions

~~*1.4.1*~~ *1.5.1* When an alteration, amendment, deletion or addition to the approved arrangements and procedures is proposed, appropriate details are to be submitted for approval.

Existing sub-Section 1.5 *has been deleted.*

■ *Section 2*
~~Environmental Protection (ECO) class notation~~ Core requirements

2.1 General

2.1.1 It is a prerequisite for assignment of the **ECO** notation that the ship:
(a) complies with the Anti-fouling Convention, the Ballast Water Convention, except as modified by ~~2.11.4~~ 2.12.4, and all Annexes to MARPOL 73/78, as amended, applicable to the ship;
(b) has a valid Safety Management Certificate (SMC), in accordance with the ISM Code issued by the Flag State Administration with which the ship is registered or a duly authorised organisation complying with Resolution A.739(18) and authorised by the National Authority with which the ship is registered; and
(c) is enrolled in LR’s Ship Emergency Response Service (SERS) or the equivalent scheme of another IACS Member.

2.1.2 Where a ship, by virtue of its gross tonnage, is not required by the MARPOL Convention to have MARPOL Certification, the following are to be maintained:
(a) An Oil Record Book in accordance with MARPOL Annex I.
(b) A garbage management plan and record book in accordance with MARPOL Revised Annex V.

2.2 ~~Oxides of nitrogen~~ Nitrogen oxides (NO$_x$)

2.2.2 All engines falling within the scope of MARPOL Annex VI, Regulation 13 are to comply with its provisions and meet the NO$_x$ emission limits applicable to the date of construction of the ship or, where relevant, the engine installation date.

~~*2.2.3* Certification is to be issued by a Flag State Administration or a duly authorised organisation, complying with IMO Resolutions A739(18) and A789(19).~~

2.2.3 **EIAPP** certification or Statement of Compliance is to be issued by, or on behalf of, the Flag State.

2.3 ~~Oxides of sulphur~~ Sulphur oxides (SO$_x$)

2.3.4 An oil fuel management system is to detail the maximum sulphur content to be specified when ordering oil fuels and the means adopted to verify that the sulphur content of oil fuels supplied meets that requirement. This management system is to include the practices to be adopted to ensure that appropriate low sulphur oil fuels are used when the ship is within IMO designated ‘Emission Control Areas established for SO$_x$ and particulate matter control’ and/or the jurisdiction of other local, national or regional ‘SO$_x$ Emission Control regimes’, as applicable.

2.3.5 Where testing to determine the sulphur content of fuel received on board is to be carried out, a representative sample is to be drawn at the time of delivery from the ship's bunker manifold using the manual or automatic sampling methods defined in ISO 3170 or 3171, or their national respective equivalents. Fuel sulphur content is to be subsequently determined using the laboratory test method ~~ISO 8754:~~ ISO 8754:2003 *Determination of sulphur content – Energy-dispersive X-ray fluorescence spectrometry*.

2.3.6 Alternative arrangements providing an equivalent level of environmental protection will be considered. If an exhaust gas cleaning system is fitted, it should be certified to MEPC.184(59).

2.4 Energy management

~~*2.4.1* An energy management plan (SEEMP) is to be developed in accordance with the relevant IMO Guidelines (MEPC Circ.683),~~ A Ship Energy Efficiency Management Plan (SEEMP) is to be retained on board according to the provisions of Regulation 22 of MARPOL Annex VI and subsequently be reviewed ~~and endorsed~~ by LR.

2.4.2 The SEEMP is to be ~~implemented on board~~ developed in accordance with MEPC.213(63) *Guidelines for the Development of a Ship Energy Efficiency Management Plan (SEEMP)*.

~~*2.4.3* The SEEMP and associated records are to be retained on board.~~

~~*2.4.4* For new ships, the SEEMP is to be available upon delivery.~~

2.7 Oil pollution prevention

2.7.12 Procedures covering the handling of all oils and oily wastes are to be established and implemented. As a minimum, these are to cover:

(a) loading, storage and transfer of oil fuels, lubricants, hydraulic oil, thermal heating oil and drummed oil products;
(b) storage, transfer, discharge and disposal of oily mixtures contained in the ship's sludge, bilge holding and waste oil tanks and machinery space bilges; and
(c) recovery of any oil spilled on decks~~; and~~
~~(d) prevention of leakage of fuel and lubricating oils during fuel changeovers in accordance with Regulation 14(6) of MARPOL Annex VI~~.

2.8 Arrangements on ships carrying oil cargoes in bulk

2.8.8 Procedures covering ship to ship transfer of bulk liquid cargoes are to be established for ships engaged in the transfer of oil cargo at sea (STS Operations as defined in MARPOL Annex 1 Ch 8 ~~Reg 40~~ Regulations 40, 41 and 42). These are to be agreed with LR, and implemented.

2.9 Garbage handling and disposal

2.9.1 A garbage management plan, developed in accordance with IMO ~~MEPC Resolution 71(38)~~ Resolution MEPC 201(62), is to be available and implemented. This plan, *inter alia*, shall include:

(a) identification of the sources of garbage;
(b) means of minimising garbage production;
(c) procedures for the safe and hygienic collection, segregation, storing, processing and disposal of garbage, including the use of the equipment (compactors, comminuters, incinerators or other devices) on board. These procedures are to cover all garbage generated during the normal operation of the ship. The disposal of the following materials is to be specifically covered:
    - Cargo residues.
    - Cargo associated wastes.
    - Waste oil.
    - Paint and painting materials.
    - Medical wastes.
    - Large metal objects such as oil drums and machinery components.
    - Ropes: metal, synthetic or natural fibre.
    - Rust/scale debris.
    - Ballast tank sediments.
    - Equipment containing refrigerants.
    - Plastic.
    - Food waste.
    - Cooking oil.
    - Domestic waste.
    - Fishing gear.
    - Operational waste.
    - Incinerator ashes.
    - Animal carcasses.

2.9.2 Where fitted, incinerators are to be designed and constructed in accordance with the requirements of IMO Resolution MEPC 76(40). A type approval certificate issued by LR, another IACS Member or the relevant Flag State Administration is to be provided. As an alternative, a ~~certificate~~ Declaration of Conformity issued under the EU Marine Equipment Directive ~~may be~~ is acceptable.

2.9.3 Where incineration is to be carried out, procedures are to be developed and implemented, covering:

~~(a) operation in accordance with the requirements of MARPOL Annex VI, Regulation 16; and~~
(a) operation, documentation and training in accordance with the requirements of MARPOL Annex VI, Regulation 16, irrespective of ship construction or incinerator installation date; and
(b) prevention of incineration within areas where incineration is prohibited by the Coastal State Administration.

2.9.4 Cargo residues are included in the definition of garbage within the meaning of revised Annex V, Regulation 1.9 and may be discharged in accordance with Regulations 4.1.3 and 6.1.2. However, cargo material contained in the cargo hold bilge water should not be treated as cargo residues if the cargo material is not harmful to the marine environment and the bilge water is discharged from a loaded hold through the ship's fixed piping bilge drainage system.

2.9.5 The discharge of cargo residues should be based on the physical, chemical and biological properties of the substances and may require special handling not normally provided by reception facilities, although ports receiving such cargoes should have adequate reception facilities for all relevant residues, including when entrained in wash water.

2.10 Sewage treatment

2.10.1 Where fitted, the sewage treatment system is to be approved in accordance with MEPC Resolution 159(55). As an alternative, a ~~certificate~~ Declaration of Conformity issued under the EU Marine Equipment Directive ~~may be~~ is acceptable.

2.10.2 The capacity of the sewage treatment system~~,~~ is to be sufficient for the maximum number of persons on board. Where 'black water' only is treated, the minimum capacity is to be 115 litres/person/day for a conventional flushing system or 15 litres/person/day for a vacuum system. Where both 'black water' and 'grey water' are treated, an additional allowance of ~~135 litres/person/day~~ 300 litres per person, per day (made up from 85 litres of galley grey water, 40 litres of laundry grey water and 175 litres of cabin and domestic grey water) is to be made.

2.10.6 ~~As an alternative to treatment, sewage may be retained onboard. The sewage holding tank is to be of adequate capacity taking into account the operation of the ship, the number of persons on board and other relevant factors.~~ As an alternative to treatment, sewage and/or grey water may be retained on board. The sewage holding tank(s) and grey water holding tank(s) are to be of adequate capacity, taking into account the operation of the ship, the number of persons on board and other relevant factors (*see* guidance figures in 2.10.2). The tank is to be fitted with a visual contents gauge and a high level alarm.

2.11 Hull anti-fouling systems

2.11.1 The application of anti-fouling systems containing TBT above the level specified in the Antifouling Convention is prohibited.

2.12 Ballast water

2.12.2 The ballast water management plan is to meet the requirements of ~~Regulation B1~~ Regulation B-1 of the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 and encompass the recommendations in IMO Resolution MEPC 127(53).

2.12.5 A ballast water record book is to be kept on board and is to be used to record all ballast water operations.

2.13 VOC management

2.13.1 Tankers carrying crude oil are required to develop and implement a VOC Management Plan in accordance with IMO Guidelines for the Development of a Volatile Organic Compound (VOC) Management Plan for tankers carrying crude oil (Resolution MEPC.185(59)) that has been approved by LR or by, or on behalf of, the ship's Flag State.

2.13.2 For all tankers carrying crude oil, a Vapour Emission Control System is to be fitted which has been designed and constructed in accordance with the requirements of USCG 46, CFR 39 or the IMO Standards for Vapour Emission Control Systems (MSC Circular 585). A Certificate or Statement of Compliance issued by LR or a competent Authority recognised by LR is to be provided. As an alternative, a self-contained Vapour Recovery System, which is of a type approved by LR and which achieves equivalent performance to the systems above, may be fitted.

■ *Section 3*
Supplementary characters

3.1 Hull anti-fouling systems – A character

3.1.1 For assignment of the **A** character, the anti-fouling system applied to the ship's hull is to be ~~non-biocidal~~ listed as non-biocidal or biocide-free in the Lloyd's Register List of Approved Products.

3.2 Bio-fouling – BIO character

3.2.1 For the assignment of the **BIO** character, the ship is to have in place bio-fouling management plans, developed in accordance with IMO Resolution MEPC.207(62): 2011 *Guidelines for the Control and Management of Ship's Biofouling to Minimise the Transfer of Invasive Aquatic Species*. In addition, the Bio-fouling Management Plan is to be reviewed by LR for conformance with MEPC.207(62).

3.2.2 The ship is also to have on board a Bio-fouling Record Book in the format shown in Appendix 32 of MEPC.207(62) that contains at least the following:

- Details of the anti-fouling systems and operational practices used (where appropriate, as recorded in the Anti-fouling System Certificate), where and when it was installed, areas of the ship that are coated, its maintenance and, where applicable, its operation; dates and location of dry-dockings/slippings, including the date the ship was refloated, and any measures taken to remove bio-fouling or to renew or repair the anti-fouling system;
- The date and location of in-water inspections, the results of those inspections and any corrective action taken to deal with observed bio-fouling;
- The dates and details of inspection and maintenance of internal sea-water cooling systems, the results of those inspections, and any corrective action taken to deal with observed bio-fouling and any reported blockages; and
- Details of when the ship has been operating outside its normal operating profile, including any details of when the ship was laid-up or inactive for extended periods of time.

~~3.2~~ 3.3 Ballast water treatment – BWT characters

~~3.2.1~~ 3.3.1 Where a ballast water treatment system is installed, the character **BWT** will be assigned, provided that the treatment system is installed, utilised and approved in accordance with MEPC 174(58) or MEPC.125(53).

3.3.2 As an alternative to a system approved in accordance with MEPC.174(58) or MEPC.125(53), a system meeting the requirements of Regulation D-4 *Prototype Ballast Water Treatment Technologies* of the BWM Convention will be accepted.

Existing paragraphs 3.2.2 *and* 3.2.3 *have been renumbered* 3.3.3 *and* 3.3.4*.*

Existing sub-Section 3.3 *has been renumbered* 3.4*.*

~~3.4 Energy Efficiency Design Index – EEDI~~

~~*3.4.1* For assignment of the **EEDI** character, a Ship Energy Efficiency Design Index is to be submitted to and approved by LR.~~

~~*3.4.2* The Energy Efficiency Design Index is to be established in accordance with the IMO Interim Guidelines on the Method of Calculation of the Energy Efficiency Index for New Ships and verified in accordance with Lloyd's Register's procedure for verifying **EEDI** values.~~

3.5 Energy Efficiency Design Index – EEDI-1, EEDI-2, EEDI-3 characters

3.5.1 For assignment of the **EEDI-1**, **EEDI-2** and **EEDI 3** characters, the 'attained' EEDI must be equal to or less than the applicable reference line.

3.5.2 The 'attained' Energy Efficiency Design Index is to be established in accordance with the 2012 Guidelines on the method of calculation of attained EEDI for new ships (MEPC.203(62)) and verified in accordance with Lloyd's Register's procedure for verifying EEDI values.

3.5.3 For ships constructed before 1 January 2015, the **EEDI-1** character will be assigned when the 'attained' EEDI is less than or equal to the EEDI Phase 1 requirement (i.e., 10 per cent less than the applicable reference line).

3.5.4 For ships constructed before 1 January 2020, the **EEDI-2** character will be assigned when the 'attained' EEDI is less than or equal to the EEDI Phase 2 requirement (i.e., 15 per cent less than the applicable reference line for general cargo ships and refrigerated cargo ships or 20 per cent less than the applicable reference line for other ship types).

3.5.5 For ships constructed before 1 January 2025, the **EEDI-3** character will be assigned when the 'attained' EEDI is less than or equal to the EEDI Phase 3 requirement (i.e., 30 per cent less than the applicable reference line).

~~3.5 Energy Efficiency Operational Indicator – EEOI~~

~~*3.5.1* For assignment of the **EEOI** character, the ship Energy Efficiency Operational Indicator is to be established in accordance with the IMO Guidelines for voluntary use of the Ship Energy Efficiency Operational Indicator.~~

~~*3.5.2* The index is to be based on annual data and calculated as a one year rolling average, as applicable.~~

~~*3.5.3* Records are to be retained to show the calculation methodology.~~

3.6 Energy management – SEEMP and EnMS characters

3.6.1 For assignment of the **SEEMP** character, and in addition to the requirements specified in 2.4, a SEEMP is to be reviewed by LR to check that it is in alignment with the IMO *Guidelines for the Development of a Ship Energy Efficiency Management Plan (SEEMP)* (MEPC.213(63) and reflects industry guidelines as applicable. This is to be demonstrated by the LR SEEMP Statement of Conformance and associated documentation.

3.6.2 For the assignment of the **EnMS** character, certification under ISO 50001 (Energy Management) is to be issued by an accredited organisation and is to be applicable to the management and operation of the ship.

3.7 Integrated bilge water treatment system – IBTS character

3.7.1 These requirements apply to ships with an integrated bilge water system.

3.7.2 For assignment of the **IBTS** character, the ship is to have an integrated bilge water system designed and installed to meet the requirements of the *Revised Guidelines for Systems for Handling Oily Wastes in Machinery Spaces of Ships* and incorporating *Guidance Notes for an Integrated Bilge Water Treatment System (IBTS)* – (12 November 2008) contained in MEPC.1/Circ.642 & 643 as amended by MEPC.1/Circ.760 & 760.

3.7.3 Ships are to have on board a Statement of Fact on Installation of an Integrated Bilge Water Treatment System (IBTS), issued by LR.

~~3.6~~ 3.8 Grey water – GW character

Existing paragraphs 3.6.1 *to* 3.6.4 *have been renumbered* 3.8.1 *to* 3.8.4*.*

~~3.6.5~~ 3.8.5 Means are to be provided to aerate the tanks to prevent the development of anaerobic conditions, taking into account ~~IMO Circular MSC/648~~ MSC/Circ.648 *Guidelines for the Operation, Inspection and Maintenance of Ship Sewage Systems*.

Existing paragraphs 3.6.6 *to* 3.6.9 *have been renumbered* 3.8.6 *to* 3.8.9.

Existing sub-Section 3.7 *has been renumbered* 3.9.

~~3.8~~ 3.10 ~~Oxides of nitrogen~~ Nitrogen oxides – NOx-1, NOx-2, NOx-3 characters

~~3.8.1~~ 3.10.1 For assignment of the **NOx-1** or **NOx-2** character, the total weighted value of NO$_x$ emissions from all installed diesel engines defined within 2.2.1 is not to exceed 80 per cent of the total weighted NO$_x$ emission limits specified in MARPOL Annex VI, Regulation 13~~, applicable to the date of construction of the ship~~.

(*Part only shown*)
~~3.8.2~~ 3.10.2 The total weighted emission value for the ship (*WV*) is to be calculated as follows:

NO$_{x[IMO]}$ = the NO$_x$ emission limit value of each individual engine, in g/kWh, applicable at the date of construction of the ship, or installation date of the engine, as applicable, as specified in Regulation 13 of Annex VI to MARPOL.

~~3.8.3~~ 3.10.3 For ships constructed before 1 January 2011, the **NOx-1** character will be assigned when:

$$\frac{WAEV_{[cert]}}{WAEV_{[IMO]}} \le 0{,}80$$ ~~MARPOL Annex VI Tier 1 NO$_x$ emission limits.~~

For ships constructed on or after 1 January 2011, the **NOx-2** character will be assigned when:

$$\frac{WAEV_{[cert]}}{WAEV_{[IMO]}} \le 0{,}80$$ ~~MARPOL Annex VI Tier 2 NO$_x$-emission limits.~~

~~3.8.4~~ 3.10.4 For assignment of the **NOx-3** character, ~~engines and associated~~ engines, as defined in 2.2.1, and any associated NO$_x$ emission abatement systems are to be certified as meeting the Tier 3 NO$_x$ emission limits specified in MARPOL Annex VI, Regulation ~~13~~ 13.5.1.1.

Existing paragraph 3.8.5 *has been renumbered* 3.10.5.

~~3.8.6~~ 3.10.6 Procedures covering the use and maintenance of the equipment and systems ~~specified in 3.8.1~~ used to control NO$_x$ are to be established and implemented. Records are to be maintained which demonstrate the operation of the equipment and systems and the resultant level of NO$_x$ emissions to the atmosphere.

~~*3.8.7* Where engines are not certified in accordance with MARPOL Annex VI, the test procedure and measurement method are to be in accordance with either the Simplified Measurement Method or Direct Measurement and Monitoring Method given in Chapter 6 of the IMO NO$_x$ Technical Code.~~

~~*3.8.8* In the case where the individual engines are 'family' or 'group' engines, as defined in the NO$_x$ Technical Code, the certified emission value may be based on that of the parent engine.~~

3.10.7 Where engines constructed before 1 January 2000 are not certified in accordance with MARPOL Annex VI, the test procedure and measurement method are to be in accordance with either the Simplified Measurement Method or Direct Measurement and Monitoring Method given in Chapter 6 of the IMO NO$_x$ Technical Code 2008.

3.10.8 Where engines are constructed on or after 1 January 2000, the NO$_x$ emission value is to be established in accordance with the NO$_x$ Technical Code 2000.

3.10.9 In the case where the individual engines are 'family' or 'group' engines, as defined in the NO$_x$ Technical Code, the respective certified emission value is to be taken as that of the relevant Parent Engine.

~~3.9~~ 3.11 Oily bilge water – OW character

Existing paragraphs 3.9.1 *to* 3.9.3 *have been renumbered* 3.11.1 *to* 3.11.3.

~~3.9.4~~ 3.11.4 ~~The oily water separator~~ The bilge alarm, set at 5 ppm, is to be recalibrated or retested every five years by the manufacturer or other acceptable alternative and full records of the recalibration or retesting are to be kept ~~onboard~~ on board.

Existing paragraph 3.9.5 *has been renumbered* 3.11.5.

Existing sub-Sections 3.10 *and* 3.11 *have been renumbered* 3.12 *and* 3.13.

~~3.12~~ 3.14 ~~Oxides of sulphur – DIST, SOx character~~ Sulphur oxides – DIST and SOx characters

Existing paragraph 3.12.1 *has been renumbered* 3.14.1.

~~3.12.2~~ 3.14.2 For assignment of the **SOx** character, all fuel used on board is to be:

(a) distillate with a sulphur content ~~of less than~~ not exceeding 0,10 per cent m/m; or

(b) an alternative fuel or a hybrid fuel management solution ~~which achieves the equivalent emission limit to 0,10 per cent sulphur m/m~~ which has a resulting sulphur content which is not to exceed 0,10 per cent m/m.

Existing paragraph 3.12.3 *has been renumbered* 3.14.3.

3.14.4 Alternative arrangements providing an equivalent level of environmental protection will be considered for the assignment of the **SOx** character. If an Exhaust Gas Cleaning System is fitted, it is to be certified to MEPC.184(59).

~~3.13~~ 3.15 Enhanced tank cleaning – TC character

Existing paragraphs 3.13.1 *to* 3.13.6 *have been renumbered* 3.15.1 *to* 3.15.6.

~~3.13.7~~ 3.15.7 Heating equipment is to be provided for a tank washing ~~equipment~~ medium which achieves a minimum temperature of 85°C at the connection to the tank washing machine.

Existing paragraph 3.13.18 *has been renumbered* 3.15.8.

~~3.14~~ 3.16 Vapour emission control systems – ~~VECS,~~ VECS-L, VOC-R characters

~~3.14.1~~ 3.16.1 Tankers carrying crude oil, petroleum products or chemicals having a flash point not exceeding 60ºC (closed-cup test) will be assigned the ~~**VECS**,~~ **VECS-L**, **VOC-R** character(s), provided the requirements of ~~3.14.2, 3.14.3 and 3.14.4~~ 3.16.2 and/or 3.16.3 respectively are complied with, as applicable.

~~*3.14.2* For assignment of the **VECS** character, a vapour emission control system is to be fitted which has been designed and constructed in accordance with the requirements of USCG 46, CFR 39 or the IMO Standards for Vapour Emission Control Systems (MSC Circular 585). A certificate or statement of compliance issued by LR or a competent authority recognised by LR is to be provided. As an alternative, a self-contained vapour recovery system, which is of a type approved by LR and which achieves equivalent performance to the systems above, may be fitted.~~

Existing paragraphs 3.14.3 *and* 3.14.4 *have been renumbered* 3.16.2 *and* 3.16.3.

■ *Section 4*
Survey requirements

4.1 Initial Survey and Audit

4.1.1 Following satisfactory review of the plans and other information submitted, (*see* ~~1.3~~ 1.4), an **ECO** Initial Survey is to be undertaken for ships under construction or in service.

4.2 Periodical Surveys and Audits

4.2.4 Where the periodical surveys and audits are not completed in accordance with 4.2.1, the **ECO** Notation will be suspended. Re-instatement will be subject to surveys being held~~, as directed by the Committee,~~ appropriate to the age of the ship and the circumstances of the case.

Cross-references

Section numbering in brackets reflects any Section renumbering necessitated by any of the Notices that update the current version of the Rules for Ships.

Part 7, Chapter 11

1.3.2 ***(1.4.2)***	1.3.3 *to* 1.3.5 *now reads* 1.4.3 *to* 1.4.5
	1.3.3 *now reads* 1.4.3
	1.3.4 *now reads* 1.4.4
	1.3.5 *now reads* 1.4.5
3.6.1 ***(3.8.1)***	3.6.2 *now reads* 3.8.2
	3.6.3 *now reads* 3.8.3
	3.6.4 *to* 3.6.9 *now reads* 3.8.4 *to* 3.8.9
3.13.1 ***(3.15.1)***	3.13.2 *to* 3.13.8 *now reads* 3.15.1 *to* 3.15.8
3.14.3 ***(3.16.2)***	3.13.2 *now reads* 3.15.2
4.1.1	1.3 *now reads* 1.4

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Published by Lloyd’s Register
Registered office
71 Fenchurch Street, London, EC3M 4BS
United Kingdom